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Bks. 354 #5

AAF 50-3 ORAL EXAM STUDY QUESTIONS

INSTRUMENTS

Turn and Bank Indicator

1. What principle of the gyroscope is utilized in the Turn and Bank Indicator?
   Precession.
2. The Turn and Bank Indicator measures motion about what axis?
   Vertical Axis
3. What is the actuating mechanism of the Turn and Bank Indicator?
   Gyro
4. What is the difference between the standard rate Turn and Bank Indicator and a one-half rate Turn and Bank Indicator? std rate indicates single needle width turn for rate of 3°/sec. 1/2 rate indicates 1½°/sec for single need width
5. On what type of airplane would you expect to find a one-half rate Turn and Bank Indicator? High speed type
6. What is the desired suction for the Turn and Bank Indicator? What are the allowable limits of suction? 1.9#/in² 1.8#/in² - 2.1#/in²
7. If suction were low, what reaction would the pilot expect on the Turn and Bank Indicator? Less indication on inst. for same bank.
8. How can a pilot determine the amount of suction upon the Turn and Bank Indicator? not possible in air.
9. How is the Turn and Bank Indicator checked on the ground before take-off?
   In taxi turns.
10. How manyneedle widths will the turn needle indicate?
    6 needle widths
11. With a needle correctly calibrated for a standard rate turn, how far will the plane turn holding a single needle width turn for 30 seconds with the ball on the low side? On the high side? 90° either way
12. The dampening or dashpot assembly is for what purpose?
    eliminate excessive oscillation
13. What is the relationship between airspeed, angle of bank and a standard rate turn? for std. rate turn the higher the A/S the steeper the ∠ of Bank

Directional Gyro

14. Upon what principle of the gyroscope does the Directional Gyro depend for its indication? Rigidity in space
15. Practically speaking, what are the upset limits of the Directional Gyro in pitch and bank? 55°
16. What is the desired suction on the Directional Gyro? What are the allowable limits of suction? 4#/in² 3.75#/in² to 4.25#/in²
17. Does the Directional Gyro have to be reset occasionally? If so, how often?
    Yes every 15 min approx 3°

18. What is the allowable amount of drift or creep on the Directional Gyro?
3° in 15 min

19. Does the suction gauge indicate the amount of suction on the Directional Gyro? No on individual filter system

20. After starting the engine, how many minutes does it take for the rotor of the Directional Gyro to attain full speed?
5 min.

21. What is the primary cause for the directional gyro creep?
Friction of bearings.

22. Does it make any difference if the Directional gyro is uncaged in a bank, a dive, or climb rather than level flight? Yes for a short time but eventually it will precess into true vertical (20 min)

23. How should the Directional Gyro be checked on the ground before takeoff?
Uncage with twisting movement of caging

24. Does caging the directional gyro restrict the freedom of movement of the gimbals, or stop the spinning of the rotor, or disengage the card from the vertical gimbal ring?

25. In straight and level flight, in what plane does the gyro rotate?
Vertical

26. How is erection of the Directional Gyro accomplished when the rotor has deviated from the vertical? Precession through air jet striking gyro on side.

Artificial Horizon

27. What principle of the gyroscope does the Artificial Horizon utilize for its indication? Rigidity in Space

28. What is the desired amount of suction on the Artificial Horizon?
4"/m²

29. What are the allowable limits of suction on the Artificial Horizon?
3.75 4.25

30. What device keeps the rotor in the Artificial Horizon rotating in one plane?

31. Why is it necessary to have the Artificial Horizon completely uncaged when in use?

32. Do errors appear in the Artificial Horizon when making a turn? If so, what is the principle cause of these errors? Yes Friction

33. What are the upset limits of the Artificial Horizon in pitch and bank?
110° bank 70° pitch

34. How may the pilot ground check his Artificial Horizon before takeoff?

35. After starting the engine, what length of time should be allowed for the rotor in the Artificial Horizon to assume full speed?
5 min

36. Must the adjustment of the little airplane on the Artificial Horizon be changed whenever a different cruising speed is adopted in flight? If so, why? Yes changing attitude

37. How does the pilot determine the amount of suction on the Artificial Horizon?
No way in individual filter system

38. What is the main cause of error in the indications of the A/H?
Friction

Suction System

39. What is the source of suction on modern military equipment?
Engine driven sliding vane pump.

40. If this source of suction fails, do you have an alternate source of suction on your airplane? If so, where is it and what is it? Some yes AT-6 No
Venturi or aux pump on another engine

41. What is the purpose of the restrictor valve in the suction system?
To reduce suction from 4#/in² to 1.9 for T & B.

42. How would you determine the amount of suction on the Bank and Turn Indicator, Directional Gyro, and Artificial Horizon in your airplane?
Can't be done

43. What is the main reason for using a suction system in preference to a compression system as a means of moving air through the lines?
To keep air clean

44. How will the suction gauge be affected by a clogged filter of the master filter system as compared to a clogging of an individual filter at one instrument of the individual filter system? If master filter is clogged suction will go down. On indiv. filter system no indication on guage

Pitot-Static System

45. What is meant by pitot pressure? What is meant by static pressure?
Dynamic or ram pressure Atmospheric or barometric pressure flt level.

46. What instrument or instruments use pitot pressure?
Air speed only

47. What instruments use static pressure?
Air speed, altimeter & rate of climb

48. What is the source of pitot and static pressure on your airplane?
pitot tube

49. What is meant by a flush static source? Do you have it on your airplane?
Small holes in skin of plane fuselage

50. Does your aircraft have an alternate source of static or pitot pressure?
Not on AT-6 Most tactical ships

51. When would you use this alternate source?
When pitot static pressure becomes inoperative.

52. If you switch to alternate source, would any of the instruments give a different indication? If so, what kind of indication? A/s higher, Alt higher, Rate of Climb shows climb briefly.

53. If the Pitot Static head were broken off, what instruments would be affected and how? Alt., Airspeed, & Rate of Climb — No airspeed, alt & rate of climb on alternate sourse.

54. When should the pitot static heater be used? When should it not be used?
In icing or anticipated icing conditions. On ground

55. What are three parts of the pitot static tube?
Static pressure chamber, dynamic or ram pres. chamber + heater element.

56. How is the pitot-static tube mounted with reference to the axis of the aircraft? // to relative wind at cruise (approx to long. axis)

57. Name two precautions that may be taken to insure dependable operation of the pitot static tube system. Keep covered on ground and use pitot heat when necessary only.

Altimeter

58. What pressure or pressures does the altimeter utilize for its indications and where is its source? static pitot tube

59. What is altimeter setting?
field pres. reduced to sea level barometric pres.

60. What is field pressure?
Barometric pressure at the field (in. Hg)

61. What is pressure altitude variaton?
Difference in feet between sea level pres & 29.92 level

62. What is pressure altitude?
Height in Standard air

63. What is calibrated altitude?
Indicated Alt Corrected for inst error

64. How is the altimeter set before take-off?
on Altimeter Setting.

65. Should the altimeter be reset constantly during instrument flight? If so, what information does the pilot need? Yes. Current local altimeter Setting.

66. What are the reference markers and how are they used?
For setting in pressure altitude variation (+ clockwise

67. Practically speaking, what is the ratio of movement between the barometric scale, reference markers, and the hands? .1" Hg = 100 ft on altimeter + reference markers

68. The Altimeter setting at the point of take-off is 29.92" Hg. and the surveyed elevation is 0'. The Altimeter Setting at the destination is 28.92" Hg. surveyed elevation is also 0'. In flying between these two points, the pilot does not reset his altimeter. Upon reaching his destination, would the pilot expect his altimeter to be in error? If so, approximately how much?
yes 1000'

69. If flying into a region of lowered pressure without resetting his altimeter the pilot should expect what relation between actual and indicated altitude?
flying at lower act. alt. than indicate

70. What is true altitude?
Cal Alt corrected for temp and pres

71. What information is necessary to compute true altitude?
Correction Card, free air temp, pressure alt.

72. What effect does colder than normal temperature of the atmosphere have on the Altimeter? lower than indicated alt.

73. What is the range (limits of operation) of the altimeter in your airplane?
-1,000 ft to 50,000 ft.

74. What are the limits of the corrective devices, the barometric scale and reference markers? 28.10 - 31.00 no limit on ref. markers

75. How may the altimeter be checked before take-off? If it is out of tolerance what may be done to correct this condition? Between altimeter setting and field elev. Use adjusting screw.

76. What is the scale error card for the altimeter? How and when is it used?
Gives you corrections for indicated airspeeds at +23°C + -25°C
Add or subtract correction as indicated from indicated altitude to get calibrated alt.

77. What is the allowable amount of error in the altimeter at sea level under standard temperature and pressure conditions?

±50 ft.

78. Should a pilot fly true altitude, pressure altitude, indicated altitude or calibrated altitude when flying on airways? If so, what must the pilot do to insure a correct altitude?

indicated alt. Get current local altimeter setting

Airspeed Indicator

79. What pressure or pressures does the airspeed indicator utilize for its indication? Pitot static & pitot dynamic.

80. What is indicated airspeed? What is true airspeed?

diff bet. impact pres. + static pres. cal. (Calibrated A/S corrected for temp & alt. in mph)

81. How is true airspeed computed?

on a computer

82. What effect does icing of the pitot-static head have on the Airspeed Indicator? A/S will drop off give false reading

83. How will the indication of the Airspeed Indicator be effected if the pitot line became completely clogged? If the pitot head were broken off?

Indicate zero both cases

84. What effect will pitot heat have on airspeed if left on while in the air but no icing is present? No effect

85. What final answer does the airspeed give with reference to attitude of the aircraft? The nose position of aircraft when flying instruments

86. What are errors in the Airspeed Indicator?

1. Instrument error 2. Instalation 3 Flight Error

Rate-of-Climb Indicator

87. Upon what pressure or pressures does the Rate-of-Climb Indicator depend for its indication? static

88. Does this instrument have a lag in its indication? If so, how much?

Yes 6 to 9 sec

89. Is this instrument reliable in rough turbulent air?

No

90. When would you use the Rate-of-Climb Indicator?

for steady indications st & level, climb, decent

Magnetic Compass

91. Outside of radio equipment, what is the only direction seeking instrument in the airplane? Magnetic compass

92. What principle of operation is utilized in the Magnetic Compass?

Earths magnetic force

93. Name 3 of the most common errors found in using the Magnetic Compass.

Deviation, Variation, Dip (Magnetic

94. Upon what headings is acceleration and deceleration errors apparent? What causes these errors? E & W magnetic dip

NE odd
SW EVEN

95. What is northerly turning error? How does it effect the Magnetic Compass?
when turning from North Compass lags or turns in opposite direction

96. How should a Magnetic Compass be used in turns to compensate for errors that occur?

97. What is variation? How can it be determined?
∠ between The North and Mag Compass.

98. What is deviation? How can it be determined?

99. What is the compass correction card in the airplane used for?
Correct for deviation

100. Why is the card assembly submerged in a liquid?

101. How is the Magnetic Compass swung?
first Compensation magnets on cardinal headings

102. How is deviation compensated for in the Magnetic Compass?

Rules and Regulations

A. 60-16

103. Name a distress signal used by aircraft. Mayday

104. What are the weather minimums for contact flight within a control zone?
1000' & 3 mi Tower authorize down to 1 mi

105. What are the take-off and landing minimums during instrument conditions for a Green Card? What are the take-off minimums for a holder of a white card under the same conditions? Green TO 200' 1/2 mi hand 0', 0 mi.
White TO 500' 1 mi

106. In case no weather minimums for the particular station to be cleared for are published in T.O. 08-18-3, the following minimums will apply:
800' - 1 mi 600 - 2 mi
700 - 1½ mi 500 - 3 mi

107. What is an instrument flight?
flight without visual reference to ground or within gliding distance.

108. What is an alternate?
Point other than point of first intended landing which may be used

109. When it is necessary to violate or ignore an air traffic rule because of an emergency or military necessity, what must the pilot do after he lands?

110. How are different civil airways classified? How would the pilot know at what altitudes to fly them?
Color & number Amber and Blue North bound add thousand

111. What are the minimum flight altitudes over:
a. congested areas 1000' or enough to glide to outside of area
b. normal areas 500'

112. Why must there be a contemplated alternate airport filed with all instrument flight plans? In case destination closes in of too long a wait for landing clearance

113. Give the factors you would consider in intelligantly selecting an alternate airport for an intended instrument flight plan.
1. Suitable for aircraft flown
2. alternate (5 min cruise)
3. Weather Range 2000 & 3 mi ⊕ 1500
without Range Clear & 3 mi

114. What weather conditions must exist at an alternate airport, both with and without a directional radio facility, for it to be approved as an alternate? With Radio Range 2000 ⊕ + 3 mi without Radio Clear + 3 mi. 1500 ⊕ + 3 mi

115. Give the fuel supply rules that must be conformed with in selecting an alternate airport. Destination + alternate + 45 min of cruise.

116. Can you use as your alternate, your point of take-off? Explain. Yes if it meets above requirements.

117. Is it mandatory that you contact and report your position to each communication station enroute on an instrument flight plan? Explain. Yes So ATC can relay messages & track your flight.

118. In the event of radio communication failure while on an instrument flight plan, what procedure would you use? 1. Change to CFR 2. Let down contact in below clouds & land 3. Let down [illegible] to normal approach alt + land.

119. What rules must be observed in crossing civil airways under instrument conditions? Have IFR clearance. Cross at more than 45° + 500'

120. What is the minimum altitude above all terrain that an aircraft can fly in making an instrument flight? 1000'

121. Can a pilot make a let-down through the overcast at any point enroute where there is not a range station with an established let-down procedure? Explain. Yes at a Range Sta by getting clearance from ATC or Station. [illegible] Sta

122. What is a radio fix? Name four types. Point that can be defined by [illegible] Four number, Range Sta, Range leg intersections, Homing Sta.

123. Can you use as an alternate a field with 4000 feet overcast and 10 miles visibility with a control tower as a radio aid? No

124. What airspace is under the jurisdiction of Airway Traffic Control? Airways 10 mi wide + 17000'

125. What is an unlimited ceiling? How is it measured? Under 6/10 coverage up to 9750'

126. If you failed to observe instrument flight rules due to an emergency enroute, what action must be taken by you as the pilot at the completion of the flight? Make written report of violation to Operations officer within 24 hrs

127. A control zone around an airport takes in a radius of how many miles? 3 mi

128. Give the right-of-way rules for different types of aircraft. Slower has rt of way balloons, gliders, airships, airplanes

129. Which aircraft has right-of-way when one overtakes another, and give the rule to be used in passing. Overtaken has rt. of way. Pass 500 to Rt.

130. What is the traffic rule for aircraft on crossing or intercepting headings? One on Rt has rt of way other gives way to right.

131. Give the general direction in which the color-designated airways run and what altitudes are to be used on them. Green & Red E odd
Amber + Blue N odd

132. What are the rules for an aircraft not on a flight plan, that is entering a range approach channel? Stay under 1500'

133. Can an airport control tower operator authorize deviation from AAF Regulation 60-16, in respect to visibilities in landing minimums?

Can reduce visability to 1 mile

134. Must an AAF Form 23 be filed on a local IFR flight? yes

135. How long is a clearance usually valid after proposed take-off time?
1 hour after forcaster signs

136. What section of Form 23 is transmitted to an appropriate airway traffic control center? Section D

137. How many Forms 23 are required for a formation flight?
One

138. How can a pilot obtain clearance from an airfield where there is no Base Operations facility? Call AFS telephone, telegraph, radio

139. What pilots possess their own clearing authority?
Com and Senior & Green card

140. What procedure would you use if while on a contact flight plan conditions changed along the route to instrument conditions? Call nearest Radio for flight plan or go back

141. What are two important entries that must be made on Form 23 for an instrument flight plan that are not made for contact flight plan?
Alternate Altitude

142. Can Airway Traffic Control disapprove a flight plan? Explain.
No

143. How must an approved flight plan be changed enroute? Contact ATC thru nearest Radio Facility.

144. What is a notification of arrival? Who is responsible that one be sent? How is it sent? Pilot req. For arrival notice to departure point by Twx, telegram

145. What is an RON? Who is responsible that one be sent? How is it sent?
Remain over night Pilot Sameway

146. In relation to AAF Form 23, what must be done at the completion of any flight plan? Give arrival notice to transmit dest.

147. Explain the purpose of Section C on AAF Form 23, and give a general description of the information to be entered therein. Existing wx & Forcasted wx winds alight Altimeter settings Freezing level etc

148. What marginal conditions must exist enroute for a pilot who does not possess either a green or white instrument card? 2000' & 6 mi ✓

149. In clearing a pilot who does not have an instrument card, under marginal conditions, what is the specified duty of the Operations Officer that he does not normally do on other contact clearances? Sees that pilots ability will get him thru

150. What is the purpose of the AAF Form 23?

151. With weather facilities and information available, but without the presence of qualified weather personnel, what can you, as a pilot, do when filling out a flight clearance? Wx checked by pilot

152. For how long a period of time are clearances valid from the proposed time of take-off? One hour after forcaster signs

153. Who is the clearance authority for flight plans at any military station? What are his responsibilities in connection with flight clearance?
CO & his designated reps

154. What must be done with the duplicate copy of the Form 23 that the pilot is given prior to take-off? Turned into Ops at Destination

155. What are the requirements for a flight or formation that intend to file a plan that might lead them into instrument weather? What are the requirements for the flight leader?

156. What is the Form 23A, who makes it out, and explain its general value to the pilot. Forecaster Vert X Sec gives actual picture of forecasted [illegible]

C. General questions, rules and regulations:

157. On what basis are instrument card, AAF Forms 8 and 8A, issued?
Inst proficiency for white card (form 8) [illegible]

158. How long is an instrument card effective?
1 year

159. What is an airspace reservation?
Restricted to any flying

160. What is meant by a "listening watch?" A check point?
Monitoring a frequency Aim point [illegible]

161. What is meant by over the top flight?
500' min over an overcast

162. When on a contact flight clearance, what are the minimum horizontal and vertical distances an aircraft can be flown to any type cloud formation?
2000' H 500' V

163. What is the function of Airway Traffic Control?
Seperate traffic & Advise

164. What are the minimum weather conditions for take-off under an instrument flight plan for a white card holder? 500 & 1 mi

165. What are the minimum ceilings and visibilities that must exist for you, as a white card holder, at your point of destination for instrument clearance to be approved? 800 - 1 600 - 2
700 1½ 500 - 3

166. Give the name and/or number of three Technical Orders containing information necessary for instrument and normal cross country flying.
08-15-1 -2 -3

167. Give the factors you would consider necessary for selecting an alternate airport for an intended instrument flight plan. 1. Suit for Aircraft
2. Within Range 3 wx Minima

168. From what sources of material can you obtain information regarding the condition of airdromes? Lighting facilities? Notams & weekly notices
08-15-1

169. Unless necessitated otherwise by terrain features, in what direction are outbound procedure turns made? Left

170. When the cone of silence is a holding point, in which direction are inbound procedure turns made? Right

171. From what source of information can the frequencies of commercial broadcasting stations be found? 08-15-2

172. How would you use the AAF Instrument Let-down Procedures Manual in planning an instrument flight? What information can you get from this manual that might aid you in clearing to the station under instrument conditions?

173. What is an emergency altitude? State by what radius around the range station and by what altitude above the surrounding terrain that the emergency altitudd covers. 1000' above anything within 100 mi

174. Give an example of a position report.

175. Give the meaning of the following light signals from a radio tower:
a. Green light go ahead land take off etc
b. flashing red light when aircraft is taxiing.
c. flashing green and red light when aircraft is in air. remain where you are

176. What is the attention signal from an airways range station prior to broadcasting on voice?

177. What is a safe altitude as defined for airways flying, and where can you locate this altitude? Radio facility chart 1000' above terrain

178. Give the location and color of the minimum number of lights on an airplane which it must have in order to fly on civil airways at night.

Weather

Air Masses

179. Give the source region and characteristics of the following air masses: cPk, mTw, mPk, cTw. cPk dry - cold - unstable mPk - wet - cold - unstable
mTw wet - warm - stable cTw - dry - warm - stable

180. In the United States, the worst all round weather conditions are found in what air masses?

181. Air masses formed over water are designated by what symbol on the weather map? What is their relative moisture content, and this moisture would probably cause what kind of ceilings and visibilities in winter?

182. What is the air circulation in a cyclonic (low) system? In an anti-cyclonic (high) system?

Fronts

183. What is the best method of differentiating between air mass and frontal weather? wind shifts, temp changes

184. What determines whether a front is designated as a warm or cold front?

185. What is the range of ratios of the slope of a warm front? Of a cold front? Of what value would this ratio be to you in planning a flight?

186. As a cold front increases in speed, does the slope become shallower or stepper? Why?

187. As a warm front increases in speed, does the slope become shallower or steeper? Why? Shallower . ground friction

188. What is an occlusion and what type of weather do you associate with it.

189. Which type of front, warm or cold, would you expect to give the longest instrument flying conditions?

190. A warm front moves in against a mountain range. What would the weather be on the upwind side of the mountains?

191. What is a dry cold front? What would be the main hazard to flying in this type of front?

192. What determines the type and amount of clouds formed along a front?

193. How can you estimate theintesity of a front from hourly sequence data?

194. Give the color code for fronts as used on synoptic weather maps.

195. What would you do if you encountered clear icing conditions in the cold air behind a cold front?

196. What is a squall line? Where is it generally found?

197. In what direction do warm fronts usually move in the United States?

198. In which type of fronts do thunderstorms usually reach their greatest intensity?

199. What type of front do you associate with stratiform clouds and light continuous precipitation? Why?

200. Is a squall line associated with a rapid moving warm front? Explain.

201. Does a wind shift that is well marked always represent a frontal passage? Explain.

Circulation

202. What sort of weather would you expect over land in the winter with a steady wind off a warm ocean surface? low cloud

203. What sort of weather wouldyou expect over land in the summer with a steady wind off a warm ocean surface?

204. What sort of weather would you expect on the windward side of a gradual mountain slope?

205. What sort of weather would you expect on the leeward side of a gradual mountain slope?

206. What is likely to happen in air moving off cooler land on to a large warm water surface such as the Gulf of Mexico.

207. What sort of weather would you expect with a cold front traveling up a mountain slope?

208. Do the winds increase or decrease toward the center of an anti-cyclone (high)? Toward the center of a cyclone (low)?

Stability

209. What is pseudo-adiabatic chart?

210. What type of information can be obtained from this chart when plotted?

211. Demonstrate by an example how an adiabatic chart is used to determine the height and thickness of clouds or cloud layers.

212. Give a method for the determination of stability of a layer of air from the adiabatic chart.

213. What do the words "stable" and "unstable" mean to you in terms of clouds, precipitation, visibility, icing and turbulence?

214. Demonstrate how you would determine from the adiabatic chart the type of clouds formed (cumuliform or stratiform) and demonstrate how you would determine the amount of turbulence to be expected at various levels from the adiabatic chart.

215. Demonstrate how the freezing level may be determined from the adiabatic chart.

216. What is the best source of information of potential thunderstorm activity?

217. Why do thunderstorms over water at night reach a greater intensity than they do over land at night?

218. Will cumulus type clouds develop in stable mP air?

Turbulence

219. Give two or three ways by which turbulence may be caused.

220. In what kind of weather situation would the worst turbulence be encountered?

221. Name five of the seven types of thunderstorms.

222. Are all thunder storms alike in their structure?

223. Name some of the hazards associated with thunderstorms.

224. What is the roll cloud? Where is it found?

225. Where would you expect to encounter hail?

226. Do severe icing conditions exist in thunderstorms?

227. How would you determine the location of the center of the thunderstorm?

228. Which type of thunderstorm is considered to be the worst?

229. How may a pilot find out about areas of turbulence before leaving the ground?

230. How does the effect of turbulence vary with airspeed?

Icing

231. What types of ice form on an aircraft in flight?

232. At what temperatures would you expect to get clear ice? Rime ice?

233. What is the correlation between stability and the type of icing?

234. What type of clouds produce rime ice? Clear ice?

235. In what type of cloud would the most severe icing occur?

236. How would you check on the possibility of icing aloft before taking off?

237. What two meteorological factors are necessary for wing icing?

238. Why is it necessary to remove all frost from wing and control surfaces before taking off?

Fog

239. What conditions are necessary in order that fog may form?

240. What is the correlation between wind velocity and fog formation? With ground fog? With an advection fog? With upslope fog? In coastal areas? In frontal areas?

241. What effect does the location of an airport have upon the probability of fog formation?

242. What importance do you attach to temperature and dew-point spread?

243. Is the visibility always very low when the spread is zero? Explain.

Form 23A

244. What is Form 23A?

245. What weather information does the Form 23A give?

246. How may a pilot obtain a Form 23A for a flight?

Hourly Teletype Sequences

247. How should the hourly weather sequences be used?

248. Interpret the following hourly teletype sequences.

249. What dothe following letters stand for when placed before the ceiling figure in the hourly teletype sequneces?

A-
P-
W-
M-
E-

Winds Aloft Reports

250. How are winds aloft reports obtained?

251 Interpret the following winds aloft reports: 01708 1920 42048 2150 62166 2270 82387 2392 02499 7408

Forecasts Sequences

252. What is a CAA Route Forecast, how often does it come out, and for what period of time does it cover? CAA Terminal Forecast?

253. What information is given in a CAA Route Forecast?

254. Interpret the following CAA Route Forecast.

Synoptic Chart or Weather Map

255. Is the weather map a forecast or an observation ?

256. Who prepares the weather map, and how often is it prepared?

257. How recent is the information on the weather map?

258. Give a general interpretation of the weather from the following weather map.

259. How should a weather map be used?

Flight Planning

Facilities in the Operations Office.

260. Fill out properly the following AAF Form 23.

261. What information may be obtained from the Radio Facility Chart?

262. What information is contained in the AAF Radio data and Flight Information

263. What information is contained in the Instrument Approach Procedure, and how would you use it in planning a flight?

264. What information is contained the Army-Navy Directory of Air Fields and the Weekly Notices to Airmen, and how would you use this information in planning a flight?

265. What is the transition training file and what use can the pilot make of the file?

Facilities in the Weather Office

266. What facilities in the weather office are available to the pilot?

267. How would you coordinate facilities in weather office in planning flight?

268. How do you determine where and when icing conditions will be encountered while in flight?

269. How do you determine the possibility of thunderstorms in your flight path?

Radio and Procedures

Range Stations

270. What is the difference between Loop and Adcock type range stations?

271. Radio range stations transmit on what band of frequencies?

272. What is a "Z" marker?

273. What signals do fan markers transmit? What is the standard method of assigning signals to fan markers? Around a station?

274. What is a "fan" marker?

275. What is a "M" marker?

276. How do signals from various markers differ?

277. What types of range stations have voice transmission? How can this facility be used by a pilot?

278. What is the chief difference between Canadian and U.S. range stations?

Other Radio Aids

279. On what frequency band do commercial broadcasting stations transmit?

280. How and when can apilot utilize standard broadcasting stations?

281. Where can you find the transmitting frequencies for commerical broadcasting stations?

282. How are omni-directional markers shown on sectional charts?

Radio Equipment

283. What is the difference between command sets, crystal command sets, VHF command sets and the laison set?

285. What is thepurpose of the "Range", "Voice", "Both", filter switch?

286. Explain how automatic and manual volume control should be used.

287. What frequencies for transmission and reception are covered in an AT-6 with automatic radio compass?

288. What is thepurpose of the "High-low" switch?

289. What is the maximum reception and transmission (voice, tone, cw) distance of the radio equipment in the AT-6?

Radio Compass

290. How is the radio compass turned on? What is the position of the various switches?

291. What is the purpose of the "CW" switch on the radio compass?

292. On what bands of receiving frequencies can theradio compass receive?

293. How is the loop operated manually?

294. How does the reception differ when selector switch ison "Compass", "Antenna", and "Loop" position?

295. What is the purpose of, and how is the tuning needle used?

Command Set

296. Explain what method of orientation you would use on a particular range, and give yourreasons for using that method.

297. What is meant by "High Cone", "Low Cone", "Initial Approach," "final Approach"?

298. What is the "cone of silence"?
Fix over station at no sound

299. What is meant by "build" and "fade" andhow are they used in orientation?
To tell whether going to or from sta.

Radio Compass

300. What is an "aural null", "wing-tip null", and "nose andtail nulls"?

301 What is meant by "tracking" and "homing"? How are these accomplished with the radio compass on inbound andoutbound headings during manual and automatic operation?

302. Describe an orientation method with the radio compass using a boxing procedure, giving reasons why theprocedure is used and the important points of the procedure.

303. What is "relative bearing"?
Bearing of sta from Plane measured clockwise from nose of plane

304 What is meant by 180 degree ambiguity andhow is it solved? Loop characteristic which gives 2 pts of minimum reception directly opposite

305. How do you determine time and distancefrom a station with the radio compass? $T = \frac{t \times 60}{4}$ T = time to sta in min t = min flown $D = \frac{t \times TAS}{4}$

306. When is the radio compass most reliable, on automatic or loop position?
loop

Technique

On Instruments

307. What are the important points to observe during an instrument take-off?

308. What are the important points to observe during a low approach?

309. What are the important points in recovery from unusual attitudes, such as stalls, spins, or spirals?

310. What is meant by "partial panel"?

311. About how long can you rely on your gyro instruments after the suction system fails?

312. What would you do if told to "hold" with certain instructions as to time and position?

313. What is meant by "stacking"?

314. With congested traffic at a terminal, if you were holding at 5000' and there were three airplanes under you at 1000' intervals, how soon could you expect an approach clearance? What amount of time would you have to make approach after getting clearance?

Weather

315. At what level and in what direction would you fly through a thunderst rm?

316. When would you fly through a thunderstorm?

317. Where in a thunderstorm would you expect to encounter hail, heavy precipitation, severe turbulence, the roll cloud, icing, and lightning?

318. When and why would you fly under a thunderstorm?

319. What would you do if you were in freezing rain and wanted to get out of icing conditions?

320. Will the freezing level occur at different levels on different sides of a front. Explain.

321. How can you determine when a front has been passed?

322. How may the propellers be cleared of ice while in flight?

323. What are the chief dangers to aircraft due to icing?

324. Which would you expect to be the most severe, a warm or cold front? Explain.

325. At what point would you fly through an occlusion?

326. What weather conditions would you expect to find in an occlusion?

327. How many different freezing levels would there be in an occlusion.

328. Explain the air circulation in a frontal system and tell what effect it will have on your navigation.